

WHAT IS CLAIMED IS:

- 1 1. A semiconductor module, comprising:
2 a heat spreader;
3 at least two semiconductors thermally coupled to said heat spreader;
4 a plurality of electrically conductive leads electrically connected to said
5 semiconductors, where at least one of said electrically conductive leads is common to
6 both of said semiconductors; and
7 a termination resistor electrically coupled to at least one of said
8 semiconductors.
- 1 2. A semiconductor module according to claim 1, wherein said semiconductors
2 are electrically coupled to one another in series, and where said semiconductors are
3 capable of being electrically coupled to a transmission channel.
- 1 3. A semiconductor module according to claim 2, wherein a final semiconductor
2 in said series, remote from said transmission channel, is electrically coupled to said
3 termination resistor.
- 1 4. A semiconductor module according to claim 1, wherein one semiconductor of
2 the semiconductors is not connected to said termination resistor, and an additional
3 termination resistor is electrically coupled to the one semiconductor not connected to
4 said termination resistor.
- 1 5. A semiconductor module according to claim 1, wherein a resistance value of
2 the termination resistor is selected such that an impedance of said termination resistor
3 substantially matches an impedance of a transmission channel and a signal source to
4 which said termination resistor is connected.
- 1 6. A semiconductor module according to claim 1, wherein said termination
2 resistor's form of termination is selected from a group consisting of: parallel

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3 termination, Thevenin termination, series termination, AC termination, and Schottky-
4 diode termination.

1 7. A semiconductor module according to claim 1, wherein said termination
2 resistor is thermally coupled to said heat spreader.

1 8. A semiconductor module according to claim 1, wherein said termination
2 resistor is bonded directly to a side wall of said heat spreader.

1 9. A semiconductor module according to claim 1, wherein said two
2 semiconductors are mounted on opposing side walls of said heat spreader.

1 10. A semiconductor module according to claim 2, wherein each of said
2 semiconductors are bonded directly to said side wall of said heat spreader.

1 11. A semiconductor module according to claim 1, wherein said leads form part of
2 a flexible circuit at least partially attached to said heat spreader.

1 12. A semiconductor module according to claim 11, wherein said flexible circuit
2 is a flexible dielectric tape.

1 13. A semiconductor module according to claim 12, wherein said flexible circuit
2 is bonded directly to said side wall of said heat spreader.

1 14. A semiconductor module according to claim 1, wherein said common
2 electrically conductive lead is selected from a group consisting of a voltage supply
3 node, a reference voltage node, and an electrical ground node.

1 15. A semiconductor module according to claim 1, wherein said heat spreader is a
2 solid block of heat dissipating material.

- 1 16. A semiconductor module according to claim 1, wherein said heat spreader is
2 "u" shaped.
- 1 17. A method of making a semiconductor module, comprising:
2 providing a plurality of electrically conductive leads;
3 electrically coupling at least two semiconductors to said plurality of
4 electrically conductive leads, where at least one of said electrically conductive leads is
5 common to both of said semiconductors;
6 thermally coupling said semiconductors to a heat spreader; and
7 electrically coupling a termination resistor to at least one of said
8 semiconductors.
- 1 18. A method according to claim 17, initially comprising electrically coupling said
2 semiconductors in series, where said semiconductors are capable of being electrically
3 coupled to a transmission channel.
- 1 19. A method according to claim 17, further comprising electrically coupling an
2 additional termination resistor to the semiconductor not already connected to said
3 termination resistor, where each of said semiconductors is capable of being
4 electrically coupled to a separate transmission channel.
- 1 20. A method according to claim 17, including bonding said termination resistor
2 directly to a side wall of said heat spreader.
- 1 21. A method according to claim 17, including mounting said two semiconductors
2 on opposing side walls of said heat spreader.
- 1 22. A method according to claim 17, including bonding each of said
2 semiconductors directly to a side wall of said heat spreader.

- 1 23. A method according to claim 17, wherein said leads form part of a flexible
- 2 circuit at least partially attached to said heat spreader, said method including bonding
- 3 said flexible circuit directly to a side wall of said heat spreader.

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